

November 2016 Climate Review for Puerto Rico and U.S. Virgin Islands.

Synopsis: *November 2016 can be described as an extremely wet month across most of the forecast area with above normal temperatures.*

Summary

Although November is a climatologically wet month across the local islands, November 2016 can be described as extremely wet with a significant surplus across most of the area. An active weather pattern was observed across the islands during most of the month as frequent trofiness and abundant low to mid-level moisture prevailed. Based on the **Advance Hydrologic Prediction Service (AHPS)**, there is a rainfall surplus of about 4 to 8 inches across most of Puerto Rico including Vieques and Culebra. This means about 150 to 300 percent above the normal rainfall. These showers and thunderstorms produced urban as well as river flooding across most of Puerto Rico. Minor flooding was reported across the outlying islands.

Based on the Cooperative Observer Network Data (COOP), 145 percent of the normal rainfall was observed across Puerto Rico. Preliminarily, an average rainfall total of 9.71 inches was measured, which is 3.02 inches above normal (Table 1). Across the U.S. Virgin Islands, 65 and 158 percent of the normal rainfall was observed across Saint Thomas and Saint Croix, respectively (Table 1). The mean temperature for Puerto Rico was 78.3°F, which is approximately 1.6°F warmer than the 30-year average from the National Centers for Environmental Information (NCEI). Temperatures across Puerto Rico ranged from 95°F in Ponce on the 16th of month, to 60°F in Maricao on month 29th. The mean temperature at Henry E. Rohlsen Airport in Saint Croix and Cyril E. King Airport in Saint Thomas was 81.0 and 82.0°F, which is 0.3 and 0.9°F above normal, respectively. In San Juan, a rainfall amount of 17.65 inches was observed making it the wettest November on record and the second wettest month for any given year with August of 2011 holding the number one spot with 18.56 inches.

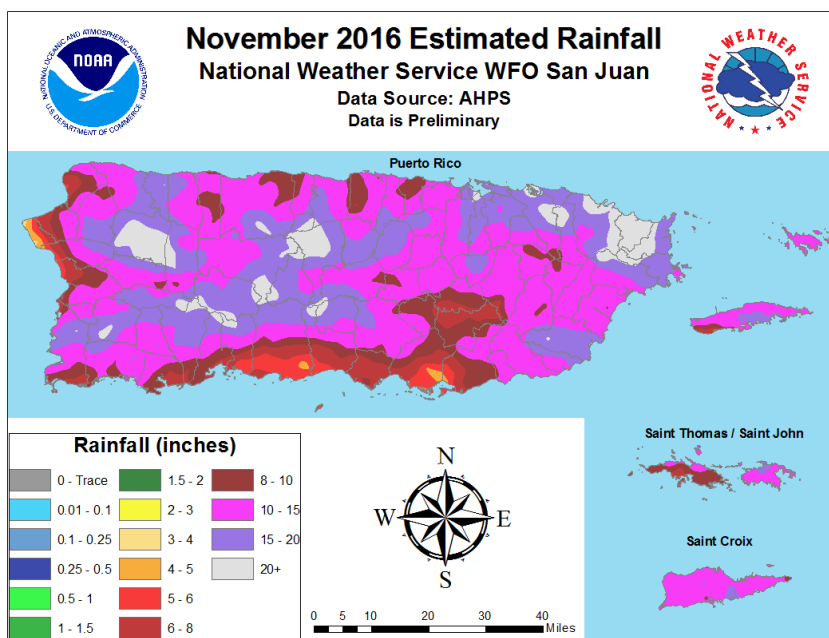
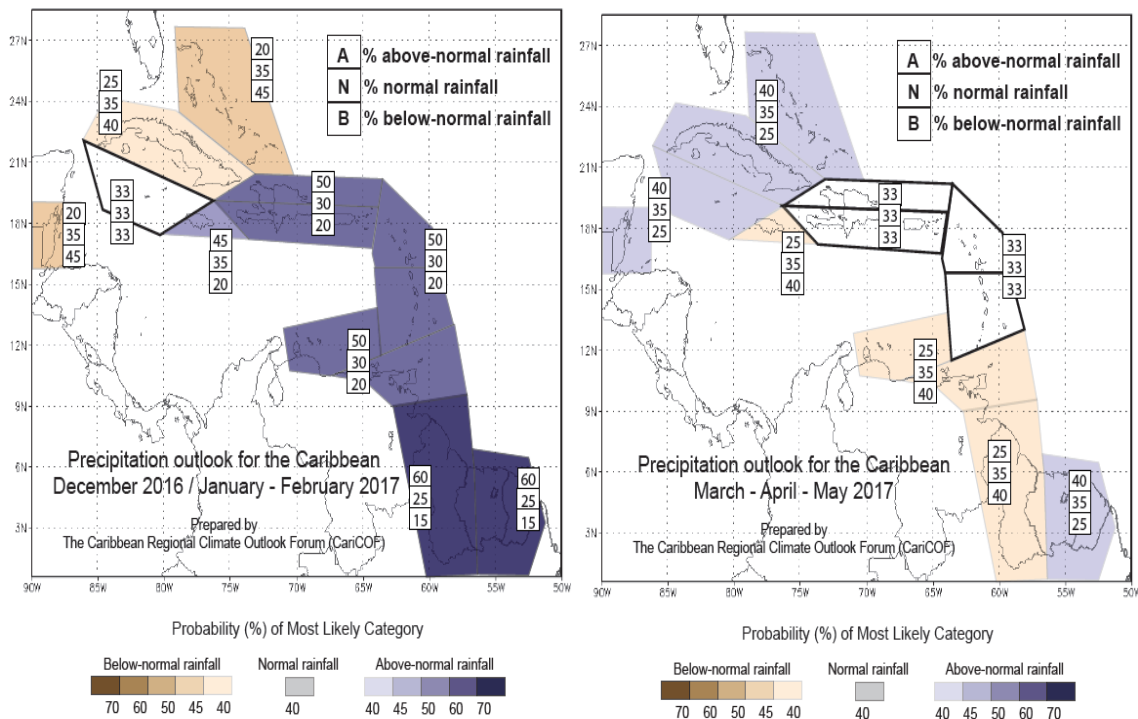


Figure 1. Rainfall Totals based on AHPS

Looking Ahead

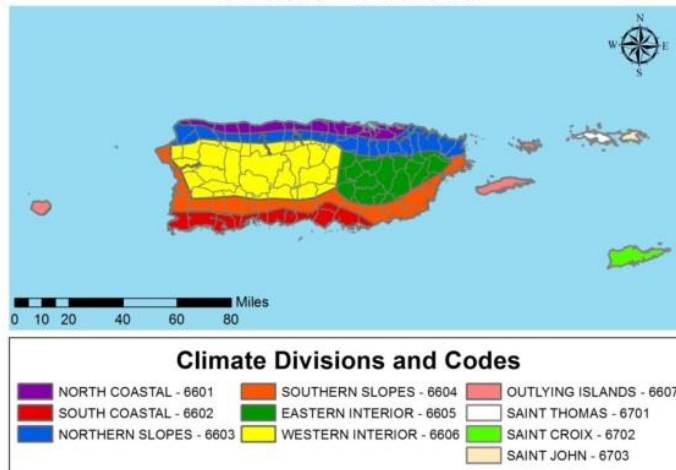


The multi-model averages favor La Niña conditions continuing through the winter. Given the current atmospheric and oceanic conditions, along with model forecasts, the forecaster consensus favors the continuation of weak La Niña conditions through December-February (DJF) 2016-17. At this time, the consensus favors La Niña to be short-lived, with ENSO-neutral favored beyond DJF. La Niña tend to shift rainfall chances for DJF to above-normal in the south and east of the Caribbean, and below-normal in the extreme north-west. However, with the forecast ENSO conditions suggesting a weak La Niña, their effect on rainfall may not be dominant. In terms of SSTs within the Caribbean, current warmer SSTs may lead to above-average humidity particularly in the western and northern Caribbean. Warm tropical Atlantic SSTs may further enhance humidity levels during the remainder of the year and into early 2017. As a result, normal to above normal rainfall is expected across our forecast area during DJF, becoming equal chances for MAM.

More Info: <http://rcc.cimh.edu.bb/long-range-forecasts/caricof-climate-outlooks/>

Average Rainfall Accumulation per climate zones based on COOP

Puerto Rico and U.S. Virgin Islands Climate Divisions



	North Coastal	South Coastal	Northern Slopes	Southern Slopes	Eastern Interior	Western Interior	All PR	St Croix	St Thomas
Observed (Nov)	11.29	6.01	8.59	9.23	11.68	11.91	9.71	9.00	4.41
Normal (Nov)	7.42	4.81	6.91	5.80	9.45	5.74	6.69	5.68	6.80
% PON (Nov)	152	125	124	159	124	207	145	158	65
Accumulated YTD	65.39	40.68	62.53	52.46	82.23	88.95	68.46	43.38	28.17
Normal accumulation YTD	60.72	38.89	60.09	51.99	75.47	63.42	58.44	36.61	39.82
% PON accumulated YTD	108	105	104	101	109	140	117	118	71

Table 1. Nov 2016 and Year to date (YTD) Rainfall (inches). Percent of Normal (PON).

Historical Rainfall and Temperature

	Puerto Rico		San Juan Area		IST		ISX	
1	1980	2.27	1954	1.48	1962	0.78	1976	1.11
2	1976	2.84	1910	1.63	1963	0.90	1964	1.75
3	1973	2.92	1980	1.91	1980	1.35	1997	1.86

Table 2. Driest Novembers on record.

	Puerto Rico		San Juan Area		IST		ISX	
1	2003	17.76	2016	17.65	2003	18.39	2003	18.03
2	1977	13.17	1979	15.96	1984	14.73	1974	16.34
3	1987	13.07	1931	15.64	2013	10.97	1987	13.25

Table 3. Wettest Novembers on record.

	Puerto Rico**		San Juan Area		IST		ISX	
1	1948	78.7	2012	82.4	1994	83.3	1997	83.3
2	1947	78.7	1980	82.2	1990	83.2	1998	83.2
3	2006	78.6	1978	81.8	1993	82.8	1980	82.6

Table 4. Warmest Novembers on record.

	Puerto Rico**		San Juan Area		IST		ISX	
1	1940	68.2	1945	77.2	2010	78.1	1974	77.5
2	1941	70.7	1922	77.2	1954	78.1	1979	78.1
3	1943	73.9	1898	77.2	1956	78.8	2010	78.3

Table 5. Coolest Novembers on record.

**** Following years are not included due to lack of data: 1944, 1951, 1956, 1957, 1959, 1967, 1979 ****

	Puerto Rico	San Juan Area	IST	ISX
Temperature	76.7 °F	80.6°F	81.1°F	80.7°F
Rainfall	6.69"	6.35"	5.23"	5.46"

Table 6. Normal Values for November

Monthly and Seasonal Highlights for Primary Climatological Data Sites.

	September	October	November	Season SON	Year to Date
San Juan Area	---	7 th warmest 83.8F	5 th warmest 81.4F Wettest Nov 17.65" 2 nd wettest month for any	7 th warmest 82.9F 3 rd wettest 28.95"	7 th warmest 81.7F

			given year		
IST	4 th warmest 85.1F	4 th warmest 84.0F	7 th warmest 82.0F	5 th warmest 83.7F	---
ISX		4 th driest 1.39"	—	---	—

Table 7. Spring 2016

Additional Highlights Based on COOP Data

Wettest Days

Station	Inches (inches)	Date
WFO SAN JUAN	3.99	11/21/2016
TOA BAJA LEVITOWN	3.67	11/9/2016
TRUJILLO ALTO 2 SSW	3.6	11/2/2016

Highest Maximum Temperatures

Station	Temperature (°F)	Date
PONCE 4 E	95	11/16/2016
GUAYAMA 2E	93	11/14/2016
AGUIRRE	92	11/17/2016

Lowest Minimum Temperatures

Station	Temperature (°F)	Date
MARICAO 2 SSW	60	11/29/2016
PONCE 4 E	62	11/7/2016
AGUIRRE	62	11/17/2016

Data is preliminary and has not undergone final quality control by the National Centers for Environmental Information / NCEI/. Therefore, this data is subject to revision. Report based on data received until Nov 4th 2016.

Puerto Rico Climate Record Period: 1940 to 2016

San Juan Metro Area Climate Record Period: 1898 to 2016 (Primary climatological site)

Cyril E. King Airport/St Thomas Climate Record Period: 1953 to 2016 (Primary climatological site)

Henry E. Rohlsen Airport/St Croix Climate Record Period: 1951 to 2016 (Primary climatological site)